Remarks

Status of the Claims: Claims 1-2, 5, 7-10, 13-37 and 40-45 are pending. Claims 1, 35, 36 and 44 are currently amended. Claim 46 is newly added. Claims 3-4, 6, 11-12 and 38-39 were previously cancelled.

Amendments have been made to bring the terms of the claims even closer to the wording used in the description of the application as filed. The basis for the amendments to use the term "axially divided" rather than "axially split" is found on page 9 lines 9-10 of the PCT publication. New dependent claim 46 has been added to specify the additional recitation that the sleeve comprises two separate leaves that are hinged together, which is based on the disclosure on page 9 lines 10-11.

Claim rejections – 35 USC § 103

Claims 1, 2, 7-10, 13-33, 35-37, and 40-45 stand rejected under 35 USC § 103(a) as being unpatentable over Buttolph in view of DeBray. The Examiner acknowledges on page 3 paragraph 2 of the office action that the Buttolph reference fails to disclose the claimed feature of the sleeve being split along one side to clamp around the drill string. DeBray is cited as disclosing the feature of the split and being clamped in place. The Examiner contends that:

"...it would have been obvious to one of ordinary skill in the art to modify Buttolph such that the sleeve was split and clamped around the drill pipe, rather than threadedly attached in order to enable the sleeve to be connected to the drill pipe "at most any location along the string" (Debray et al Column 4 lines 26-28) rather than being constrained to the areas which had threads...."

All of the independent claims rejected on this basis (1, 35, 36, 44, and 45) share the same feature of the sleeve being axially divided to clamp around the drill string.

In this response, amendments to the claims have been made to improve the clarity of the claims. Applicant also submits the arguments in the attached declaration by Mr Paul Williams. Applicant respectfully points out that each of the arguments as to why the claims are allowable over the prior art cited is independent of the other arguments. Applicant has noted the rejection of the previous arguments by the Examiner, on the basis of the Examiner's understanding of the effects of jarring. However, while jarring is one reason why the skilled person would not modify the Buttolph prior art as argued by the Examiner, jarring behaviour is not the only reason, as set out in Mr Williams' declaration. Therefore, the skilled person tempted to make the modification proposed by the Examiner would not be limited to the consideration of jarring, and would take account of the other disadvantages with the modification as set out in the attached declaration. As indicated in the previous two responses, Applicant wished to discuss this issue with the Examiner before a further office action was issued, and again earnestly requests an interview to discuss this in more detail, should the Examiner have any remaining questions after considering this response. Applicant does believe that the current arguments set out below put the application into condition for allowance, but if the Examiner has any concerns about any aspect of the application, applicant respectfully requests an opportunity to discuss these before a further office action is issued.

According to the Examiner, the new documents of Krueger et al and Thompson et al contradict the arguments presented in the previous responses, and in the two declarations already of record in this case. Applicant strongly disagrees with this reasoning. The person of ordinary skill in the art would not be tempted to adapt

Buttolph's sleeve 13 to allow it to open and close around the drill collar as now claimed, even in the light of the disclosures of Kruger and Thomson.

The attached third declaration from expert Paul Williams addresses some of the other issues pertinent to this consideration. Note that in addition to the issue of jarring of the drill collar there are numerous other problems that would arise from the Examiner's proposed modification to split the Buttolph sleeve 13 and clamp it onto the drill collar. The skilled person would need to resolve ALL of these issues if they were to be expected to follow the Examiner's proposal. Mr Williams testifies (as a skilled person in the art of drilling oil and gas wells) that he would not make the modification because the split sleeve 13 extending between the collars 11, 12 would:

- reduce the compression stability;
- introduce asymmetric axial support between split and un-split sides of the sleeve;
- deform the sleeve asymmetrically during compression;
- cause outward bowing effect on the split ends of the sleeve;
- reduce reaming and cutting performance;
- risk misalignment of the collars and thread damage;
- reduce rotational freedom of the rest on the sleeve;
- reduce axial translation of the rest on the sleeve;
- adversely affect the manufacturing, assembly and operating tolerances;
- adversely affect clamping forces;
- introduce fixing problems;
- increase risks from dropped objects in the hole; and
- increase complexity of fixing solutions and their use by inexperienced crew.

It is well established that the proposed modification cannot render the prior art unsatisfactory for its intended purpose. MPEP §2143.01V.

We respectfully submit that the skilled person would instantly appreciate all of these drawbacks in making the modification to split the sleeve 13 of Buttolph. It is entirely unsupportable that in the face of the drawbacks described in previous responses to office actions, the skilled person would persist with the modification even if he were to consider it. Even removing the consideration of jarring forces, the remaining considerations of reaming, tight axial compression of the sleeve 13, how to fix the sleeve in place, how to cope with variations in tolerance and clamping force etc, as outlined above are sufficient in themselves to make it likely that the person of merely ordinary skill in the art would reject a modification to split and clamp the sleeve 13 even without considering the additional issues concerning jarring of the string.

Accordingly the references of Kruger and Thomson do not make the combination of Buttolph and DeBray any more likely.

In fact, there are various technical aspects of the Thomson and Kruger references that support the applicant's position that the Buttolph device would NOT be modified to clamp the sleeve 13 on to the drill collar, as follows:

Neither device has any moving parts, and neither has any requirement for any part to rotate on the outer surface of the clamped on sleeve, unlike Buttolph. Buttolph absolutely requires relative rotation of the rest 14 and the sleeve 13, otherwise the torque that would be applied to the string during rotation of the string when drilling would be transmitted to the sleeve 13 and body 10 and would completely destroy the Buttolph assembly.

In contrast, Thomson's stabiliser is designed specifically to be non-rotatably locked onto the drill collar (see abstract) by a large number of bolts 38 (9-11 of them are shown in

the figures) so that it behaves as if it were an integral part of the drill collar. This is not surprising and is actually consistent with the position of the applicant that the drill collar components need to be very highly resistant to the axial loads experienced during jarring. While Thomson does show that some components can be clamped onto the drill collar if given enough fixings 38 to sustain axial support, Thomson does NOT encourage the skilled person to make the particular modification of the Buttolph system proposed by the Examiner to split and clamp the sleeve 13 on which the rest 14 rotates, because the skilled person would still realise that any modification to the Buttolph sleeve 13 would still require the rotation and free axial movement of the Buttolph rest 14 on the sleeve 13. Thomson teaches anchoring the stabiliser in place and is quite contrary to the concept of free movement of any of its components, and in fact specifically states that it's aim is avoiding relative movement. Also, there is no chance that the skilled person would consider the Thomson sleeve fixing arrangement with the row of 11 bolts 38 to clamp the stabilizer in place would be useful in the modified Buttolph, as any such arrangement of bolts in the Buttolph sleeve 13 would interfere with the required free rotation and axial sliding of Buttolph's rest 14 on the sleeve 13. Therefore the rigid non-rotatable design of the Thomson reference doesn't help the skilled person to make the combination of Buttolph with DeBray in order to split and clamp the sleeve 13 of the Buttolph device while retaining the ability of the modified design to permit free relative rotation of the rest 14 and the sleeve 13.

Krueger's device is a simple sleeve that is connected to the outer surface of the drill pipe (not to the drill collar) to protect the outer surface and bear against the inner surface of the wellbore. In the Krueger device nothing is needed to rotate or otherwise move on the outer surface of the clamped on Krueger sleeve, and in fact the outer surface is adapted to engage the inner surface of the wellbore. It does not matter if the Krueger device is not a perfect fit on the drill pipe, and in fact it is beneficial to the Krueger device if there is plenty of space for fluid to circulate between the clamped on split sleeve and

the drill pipe, as this (according to Krueger) creates a beneficial fluid bearing between the sleeve and the drill pipe, and is the whole point of the Krueger invention.

Krueger does not provide any assistance in combining the disclosures of DeBray and Buttolph to split the sleeve of the Buttolph device and continue to use the modified split Buttolph variant on the drill collar because like Thomson, the Krueger clamped sleeve does not, in contrast to Buttolph, need anything to fit over the clamped on sleeve and perform any function, like moving or sliding relative to the sleeve. Both Kruger and Thomson are completely silent about this aspect, which is crucial to Buttolph. Therefore, the simpler devices of Thomson nor Krueger would not provide any motivation for the skilled person to modify the more complex Buttolph device to split the sleeve 13 and clamp it onto the body 10 while still allowing rotation of the rest 14 on the sleeve 13.

Accordingly applicant believes that the present claim 1 is allowable over Buttolph combined with DeBray, either alone or in combination with any of the other prior art of record in this case, and that the documents of Thomson and Krueger do not assist the skilled person in making the combination.

Claims that are dependent on claim 1 are also allowable for the same reasons. Applicant draws to the attention of the Examiner the attached office action from the European Patent Office which issued in relation to the corresponding application in that office. The claim 4 commented on by the EPO Examiner as being allowable is substantially the same claim scope as the current claim 1 in this US application.

Thomson and Kruger do not help the skilled person to resolve the issue of how to attach the Buttolph rest to the modified Buttolph sleeve 13 with the split and still expect the

modified design to be able to rotate and axially move the rest 14 on the modified sleeve 13.

Accordingly the skilled person would not modify Buttolph by the teachings of DeBray to make it a clamp-on instead of an integral device, even if he took account of Thomson and Krueger.

The other independent claims 35. 36. 44 and 45 rejected on this same basis all include the same clamping feature claimed in claim 1, which is completely contrary to the teachings of Buttolph as explained above, and therefore are also allowable for the same reasons. The dependent claims also rejected include the clamp feature by virtue of their dependence, and so are also allowable for the same reasons.

Accordingly, the rejection of the claims 1, 2, 7-10, 13-33, 35-37, and 40-45 under 35 USC § 103(a) on the basis of Buttolph in view of DeBray is respectfully traversed.

Claim 5 includes the recitations of independent claim 1 by its dependency therefrom. As discussed above, claim 1 is allowable over the combination of Buttolph and DeBray. Claim 5 is therefore allowable at least by virtue of its dependency, and also for the reasons explained in the previous response of June 8, 2011. Accordingly the embodiments of the invention as claimed in any of the present claims, including claim 1 and claim 5, are NOT obvious over the combined disclosures of Buttolph, DeBray and Yancey.

The rejection of present claim 34 is respectfully traversed on the same basis as explained in the previous response of June 8, 2011.

It is respectfully submitted that the present application is now in condition for allowance, and such action is respectfully requested. Should the Examiner have any further issues, or suggestions, regarding this application, the Examiner is requested to contact Applicant's attorney at the phone number below.

Respectfully submitted,

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1) The amendments filed with the letter dated 10.08.2010 are considered allowable in regards of Article 123(2) EPC.

2) The applicant has amended the claims by adding further details of the fixation of the sleeve and provided arguments as to why the claim on file is considered inventive.

3) Following the same inventive step argumentation as in point 4 of our previous communication, the present claim on file is not considered inventive (Article 56 EPC).

As already mentioned there centralisers, stabilisers or drill pipe protectors with a sleeve construction adapted to be fixed at any place on a drill string are well-known in the art. Just as a matter of example see document D9 disclosing such an apparatus adapted to fit around the drill string and clamped at any place around the drill string.

4) The examiner has reviewed the argumentation of the applicant as to why the construction should be considered inventive. A particular argument of the applicant (last 4 sentences of page 3: "In addition to these drawbacks....") is recognised as a valid point for inventive step. It is however only relevant wherein a bushing is rotatably mounted on the sleeve.

The objection above would therefore be overcome if claim 4 was combined with independent claim 1 and accordingly claim 33 with claim 32.

5) The applicant is invited to file new (independent) claims which take account of the above comments. Note that the feature "at least one vane provided on the sleeve" is considered known in combination in the prior art and should be placed in the preamble of the new claim.